

## Solar Energy Systems

At left below is a new device known as the Solar Counter. Calibrated in kilowatt hours per square meter, it provides a numerical count of the solar energy that has accumulated on a surface; power and sensing for the device are provided by the remotely-located small solar panel shown at the left of the counter. The sensor is weatherproof and may be permanently located out of doors; counting will continue even on cloudy days to provide an accurate value of the total accumulated solar radiation.

The Solar Counter Model 482 is the latest in a line of solar energy sensing, measuring and recording devices produced by Dodge Products, Inc., Houston, Texas. They incorporate solar cell technology developed by Lewis Research Center, which has conducted extensive research on solar cells for space applications and which also manages—for the Department of Energy—a project intended to build a market for solar cells by demonstrating their advantages in practical Earth-use applications. Dodge Products was formed to bring this photovoltaic technology to the commercial marketplace. Its customers for the various devices include architects, engineers and others engaged in construction and

operation of solar energy facilities; manufacturers of solar systems or solar-related products, such as glare reducing windows; and solar energy planners in federal and state government agencies.

Among other products in the Dodge line are the Portable Solar Meter Model 776 shown below, used to estimate the performance of solar arrays, lenses and mirrors; the Solar Integrator Model SI-377, an instrument for automatic measuring, computing and recording the amount of solar energy that has fallen on a surface for periods up to nine months; and the Solar Sensor SS-100, an outdoors weatherproof system that senses solar radiation and sends input signals to the Solar Integrator. The latter two devices are used, for example, to check the efficiency of solar arrays, such as the one pictured at bottom, an installation that provides cathodic protection for the 12" Four Corners Pipe Line Company, a subsidiary of ARCO Transportation Company, Independence, Kansas. Cathodic protection involves impressing a DC current, generated by the solar array, on the pipe line to protect the pipes against corrosion. The solar array is one of four installed by ARCO to replace diesel-powered electricity generating units, which required considerable maintenance and constant care. Located near Farmington, New Mexico, ARCO's initial solar array has operated successfully without interruption for more than four years.

